### 7 ALTERNATIVE ROUTES

## 7.1 Alternative Requirement

Minnesota Statutes Section 216E.04, subdivision 3 and Minnesota Rule 7850.3100 require an applicant to identify any alternative routes that were considered and rejected for the Project. Applicants did evaluate an alternative route and an alternative route segment (**Figure 7-1**) for the new transmission line. These alternatives are described below, along with the reasons they were rejected.

# 7.2 Rejected Route Alternatives

#### 7.2.1 East Alternative

Applicants evaluated a completely different alternative that followed a more easterly route between the existing Great River Energy Hubbard Substation and the proposed Todd-Wadena Red Eye Substation (approximately 16 miles). This alternative exits the Hubbard Substation south along Hubbard CSAH 6, continues south along Wadena CSAH 23, then turns west along 310<sup>th</sup> Street to the Red Eye Substation. This alternative would also have to include construction of the Blueberry Substation and approximately 6.3 miles of 115 kV transmission line from the Menahga Switch to the Blueberry Substation (with the Great River Energy TW-MET underbuilt) to address loading issues on the 34.5 kV system at Menahga.

Great River Energy plans to create two 115 kV line outlets from the existing Hubbard Substation (one for this Project and one for a future project to the north). Because the Hubbard Substation is space-constrained, Great River Energy needs to remove one of the two 115/34.5 kV transformers to create a new 115 kV line position for this Project. This 115/34.5 kV transformer serves the Minnesota Power Pipeline Substation, which in turn servers MPL's pump station there. Because this 115/34.5 kV transformer would still need to be relocated to the Blueberry Substation under this alternative and therefore would no longer serve the Minnesota Power Pipeline Substation, this alternative would also have to include approximately 7.5 miles of new 34.5 kV subtransmission line to serve the Minnesota Power Pipeline Substation. The total mileage of new line for this alternative is therefore 29.8 miles.

This route was rejected because, in comparison to the proposed route, it would:

- 1) not meet future system needs in the area (future project to the north);
- 2) not provide redundant electric service (would not have the Blueberry Substation as a backup) to the Todd-Wadena Menahga Substation, the largest load on the Hubbard-Verndale 34.5 kV system;

T 139N R 35W Straight Existing ( Green River Substation Valley T 139N Township Existing MN Township R 34W Township Pipeline Existing T 139N Substation Hubbard Substation R 36W Proposed Straight River Substation Hubbard East Alternative County Blueberry Wadena 394th/91 Township County 771 CSAH-40 Existing Twin,Lakes T 138N T 138N Huntersville State Forest R 36W Substation 35W T 138N R 34W Runeberg Township. Shell Existing Menahga River Substatio **Township** 87 GSAH-31 Existing Menahga Substation to be retired City of Menahga Lake Substation TW-MET Proposed Menahga Substation Existing Menahga Switch Proposed Wadena Becker Blueberry East Alternative Becker Substation County Otter Tail County Central Alternative Segment Mud Lake T 137N R 36W TW-ORT CR-167 County County East Alternative Paddock T 137.N Middless Township T 137N R 35W Red Eye R 34W Township Meadow Proposed Red Eye Substation Sebeka Pump Station Township 71 City of Sebeka Menahga Area 115 kV Project Proposed Alignment - Single Circuit 115 kV
 Proposed Alignment - Double Circuit 115 kV Proposed Transmission Substation Proposed Pump Station Existing Distribution Substation Existing Pipeline Figure 7-1 Rejected Routes Proposed Transmission Substation Other Electric Transmission Utility Rejected Routes Existing 34.5 kV Transmission Line
Existing 115 kV Transmission Line
Existing Transmission Substation Existing 34.5 kV Transmission Line . Central Alternative Segment Existing 115 kV Transmission Line
 ■ East Alternative Existing 230 kV Transmission Line Todd-Wadena Existing 250 kV Transmission Line **GREAT RIVER ENERGY** Proposed Distribution Substation Existing Distribution Substation

Figure 7-1. Rejected Routes

- 3) involve a long distance of either 115 kV with 34.5 kV underbuild or a transmission line on each side of CSAH 6 and CSAH 23, and a contingency between Hubbard and Twin Lakes would have the same effect (assuming either common structures or corridor) on the system today as it would if this alternative were built (essentially there is no additional system capacity with this alternative);
- 4) be considerably longer (approximately 7.3 miles) than the proposed Project, which would result in more impacts to human settlement and environmental resources;
- 5) involve a difficult routing area near Jim Cook Lake;
- 6) have more construction impacts if we had to underbuild and keep the 34.5 kV line in service (may need to offset the line closer to residences); and
- 7) be a radial line and therefore a less reliable solution if the 115 kV line were built between the Menahga Switch Station and the Blueberry Substation (with the Great River Energy TW-MET line underbuilt).

# 7.2.2 Central Alternative Segment

Applicants did not consider routing the transmission line along Highway 71 from the City of Menahga north because the highway goes right through the City of Menahga and is adjacent to a golf course.

Applicants did evaluate an alternative segment to the proposed Project that would exit the Blueberry Substation to the east and follow Great River Energy's TW-MET 34.5 kV line for 2.25 miles, then turn south along Highway 71 for 3.25 miles to County Road 13. Although tree removal and agricultural impacts would be similar, it was determined that the Project as proposed is preferable due to the greater development along Highway 71, some of which created difficulties with residences/businesses directly across from one another and close to the road. With the proposed route, there are more opportunities to avoid homes by crossing the road and they were therefore more easily avoided.

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